

In The Claims:

1. (Original) A method of controlling an automotive vehicle having a turning radius comprising:

determining a steering wheel angle;

determining a steering wheel direction;

determining a steering wheel angular rate and

applying brake-steer as a function of steering wheel angle, steering wheel angular rate and steering wheel direction.

2. (Original) A method as recited in claim 1 further comprising determining a vehicle speed and wherein applying brake-steer comprises applying brake-steer as a function of steering wheel angle, steering wheel rate, steering wheel direction and said vehicle speed.

3. (Original) A method as recited in claim 1 wherein the steering wheel direction comprises an increasing direction and a decreasing direction wherein applying brake-steer comprises applying brake-steer using a first boost curve in a first direction and applying brake-steer using a second boost curve in a second direction wherein the first boost curve is different than the second boost curve.

4. (Original) A method as recited in claim 3 wherein the first boost curve comprises a non-linear-boost curve.

5. (Original) A method as recited in claim 3 wherein the first boost curve increases brake-steer at a first rate for a first period of time, increases brake-steer at a second rate for a second period of time, wherein the second rate is greater than the first rate, and increases brake-steer at third rate for a third period of time, wherein the third rate is less than the second rate.

6. (Original) A method as recited in claim 3 wherein the second boost curve comprises a non-linear-boost curve.

7. (Original) A method as recited in claim 3 wherein the second boost curve decreases brake-steer at a first rate for a first period of time and decreases brake-steer at a second rate for a second period of time, wherein the second rate is less than the first rate.

8. (Original) A method as recited in claim 1 wherein applying brake-steer reduces the turning radius of the vehicle.

9. (Original) A method as recited in claim 8 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce the vehicle turning radius.

10. (Original) A method as recited in claim 9 wherein applying brake-steer comprises applying an increased drive torque to a second wheel.

11. (Original) A method as recited in claim 1 further comprising detecting a parking mode, and applying brake-steer as a function of the parking mode, steering wheel angle, steering wheel angular rate and steering wheel direction.

12. (Original) A method of controlling an automotive vehicle comprising:
detecting a parking mode;
in the parking mode, when the steering wheel angle is increasing applying brake-steer using a first boost curve; and

when the steering wheel angle is decreasing applying brake-steer using a second boost curve different than the first boost curve.

13. (Original) A method as recited in claim 12 wherein applying brake-steer comprise a function of a steering wheel angle, a steering wheel angular rate and a steering wheel direction.

14. (Original) A method as recited in claim 12 further comprising determining a vehicle speed and wherein applying a brake-steer comprises applying brake-steer as a function of a steering wheel angle, a steering wheel rate, a steering wheel direction and a vehicle speed.

15. (Original) A method as recited in claim 12 wherein the first boost curve comprises a non-linear-boost curve.

16. (Original) A method as recited in claim 12 wherein the first boost curve increases brake-steer at a first rate for a first period of time, increases brake-steer at a second rate for a second period of time, wherein the second rate is greater than the first rate and increases brake-steer at third rate for a third period of time wherein the third rate is less than the second rate.

17. (Original) A method as recited in claim 12 wherein the second boost curve comprises a non-linear-boost curve.

18. (Original) A method as recited in claim 12 wherein the second boost curve decreases brake-steer at a first rate for a first period of time and decreases brake-steer at a second rate for a second period of time, wherein the second rate is less than the first rate.

19. (Original) A method as recited in claim 12 wherein applying brake-steer comprises applying at least one brake at a first wheel to reduce a vehicle turning radius of the vehicle; and

simultaneously with the step of applying at least one brake, applying drive torque to a second wheel.

20. (Original) A method as recited in claim 12 wherein detecting a parking mode comprises detecting a parking mode in response to a vehicle speed.

21. (Original) A method as recited in claim 12 wherein detecting a parking mode comprises detecting a parking mode in response to a steering wheel angle.

22. (Original) A method as recited in claim 12 wherein detecting a parking mode comprises detecting a parking mode in response to a vehicle speed and a steering angle.

23. (Original) A method as recited in claim 12 wherein detecting a parking mode comprises detecting a parking mode in response to a driver-actuated switch.

24. (Original) A method as recited in claim 12 further comprising determining a surface μ , wherein applying brake-steer comprises applying brake-steer in response to the surface μ to reduce a vehicle turning radius.

25. (Original) A method as recited in claim 12 further comprising determining a vehicle load, wherein applying brake-steer comprises applying brake-steer at a first wheel in response to the vehicle load to reduce a vehicle turning radius.

26. (Original) A method as recited in claim 12 further comprising determining a throttle position, wherein applying brake-steer comprises applying brake-steer in response to the throttle position to reduce a vehicle turning radius.

27. (Original) A method as recited in claim 12 wherein applying brake-steer comprises applying brake-steer as a function of an anti-lock brake system.

28. (Original) A method as recited in claim 12 wherein applying brake-steer comprises applying brake-steer as a function of a traction control system.

29. (Original) A method of controlling an automotive vehicle having a turning radius comprising:

detecting a parking mode;

in the parking mode, applying a first positive torque to a first driven wheel; and

simultaneously with the step of applying a first positive torque, applying a second positive torque greater than the first positive torque to a second wheel so that the turning radius of the vehicle is reduced.

30. (Original) A method as recited in claim 29 further comprising determining a brake pressure request, and discontinuing the steps of applying a first positive torque and a second positive torque when said request is greater than a predetermined threshold.

31. (Original) A method as recited in claim 29 wherein detecting a parking mode comprises detecting a parking mode in response to a vehicle speed.

32. (Original) A method as recited in claim 29 wherein detecting a parking mode comprises detecting a parking mode in response to a steering wheel angle.

33. (Original) A method as recited in claim 29 wherein detecting a parking mode comprises detecting a parking mode in response to a map correlating vehicle speed and a steering wheel rate to a parking/non-parking condition.

34. (Original) A method as recited in claim 29 wherein detecting a parking mode comprises activation of a switch mechanism.

35. (Original) A method as recited in claim 29 wherein applying a second positive torque comprises applying the second positive torque as a function of a traction control system.

36. (Original) A method as recited in claim 29 further comprising switching from a 4x4 mode into a 4x2 mode when applying the second positive torque.

37. (Original) A method as recited in claim 29 wherein determining a parking mode comprises determining a parking mode in response to a steering system pressure.

38. (Original) A method of enhancing the turning ability of a vehicle having a steering mechanism comprising:

determining a driver selectable mode;

generating a steering enhance signal in response to the driver selectable mode;

and

actuating at least one brake on one side of the vehicle in response to said steering enhance signal to enhance the turning radius achieved by the steering mechanism.

39. (Original) A method as recited in claim 38 wherein determining a driver selectable mode comprises determining a driver selectable mode in response to a switch mechanism.

40. (Original) A method as recited in claim 38 wherein actuating comprises actuating a first brake.

41. (Original) A method as recited in claim 38 wherein actuating comprises actuating a first brake and a second brake.

42. (Original) A method as recited in claim 38 wherein actuating comprises actuating a first brake at a first wheel and further comprising applying a positive engine torque at a second wheel.

43. (Original) A method as recited in claim 38 wherein activating a least one brake comprises activating at least one brake in response to an anti-lock brake system.

44. (Original) A method of controlling an automotive vehicle having a turning radius comprising:

detecting a parking mode;

detecting a transfer case mode;

applying brake-steer in response to a parking mode and a transfer case mode.

45. (Original) A method as recited in claim 44 wherein applying brake-steer comprises proportioning front wheel and rear wheel brakes based on the transfer case mode.

46. (Original) A method as recited in claim 44 wherein detecting a parking mode comprises detecting a parking mode in response to a vehicle speed.

47. (Original) A method as recited in claim 44 wherein detecting a parking mode comprises detecting a parking mode in response to a steering wheel angle.

48. (Original) A method as recited in claim 44 wherein detecting a parking mode comprises detecting a parking mode in response to a map correlating vehicle speed and a steering wheel rate to a parking/non-parking condition.

49. (Original) A method as recited in claim 44 wherein detecting a parking mode comprises detecting a parking mode in response to a driver-actuated switch.

50. (Original) A method as recited in claim 44 wherein applying brake-steer comprises applying an increased drive torque to a second wheel relative to a first wheel.

51. (Original) A method as recited in claim 44 wherein applying brake-steer comprises applying brake-steer to a front wheel.

52. (Original) A method as recited in claim 44 wherein applying brake-steer comprise proportioning brake-steer between a front wheel and a rear wheel.

53. (Original) A vehicle comprising:

means to determine a parking mode; and

a controller coupled to the means to determine a parking mode, said controller programmed to, in the parking mode, apply a first positive torque to a first driven wheel and simultaneously with applying the first positive torque, apply a second positive torque greater than the first positive torque to a second wheel so that the turning radius of the vehicle is reduced.

54. (Original) A vehicle as recited in claim 53 further comprising a traction control system, wherein the first positive torque is a function of the traction control system.

55. (Original) A vehicle as recited in claim 53 wherein the means to determine a parking mode comprises detecting a parking mode in response to a vehicle speed.

56. (Original) A vehicle as recited in claim 53 the means to determine a parking mode comprises detecting a parking mode in response to a steering wheel angle.

57. (Original) A vehicle as recited in claim 53 wherein the means to determine a parking mode comprises detecting a parking mode in response to a vehicle speed and a steering angle.

58. (Original) A vehicle as recited in claim 53 wherein the means to determine a parking mode comprises detecting a parking mode in response to a driver-actuated switch.

59. (Original) A vehicle as recited in claim 53 further comprising a transfer case having a 4x2 mode and a 4x4 mode, said controller selecting 4x2 mode when applying a second positive torque.

60. (Original) A method as recited in claim 53 wherein the vehicle comprises an open differential or a limited slip differential.

61. (Original) A vehicle as recited in claim 53 wherein the means to determine a parking mode comprises a steering system pressure sensor.